

# **Attachment A**

## **Monitoring and Reporting Program**

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION**

**MONITORING AND REPORTING PROGRAM  
FOR**

**SONOMA COUNTY WATER AGENCY**

**STREAM MAINTENANCE PROGRAM**

**SONOMA COUNTY**

**ORDER No. R2-2016-0020**

**A. GENERAL**

1. This Monitoring and Reporting Program (MRP) is issued in accordance with Provision D.44 of Regional Water Board Order No. R2-2016-0020 (Order) and pursuant to CWC sections 13263 and 13267(b).
2. The MRP is necessary to: 1) document compliance with waste discharge requirements and prohibitions established by the Regional Water Board, 2) facilitate self-policing by the Sonoma County Water Agency (SCWA) in the prevention and abatement of pollution arising from waste discharge, 3) evaluate the effectiveness of the Stream Maintenance Program (SMP), including assessment of best management practices (BMPs) and mitigation measures, and 4) assist the SCWA in complying with State requirements and policies. The evidence supporting this MRP is in the public file for this matter.
3. The MRP includes monitoring requirements for maintenance and restoration activities including the following monitoring elements: receiving water monitoring for the types of pollutants and conditions listed under the Standard Observations section; surface water monitoring during active water diversions; sediment monitoring from sediment removal projects; erosion and sediment control monitoring for bank stabilization projects; monitoring of revegetation projects and biotechnical bank stabilization projects to determine if plant establishment success criteria have been met; and monitoring BMPs to assess their effectiveness.
4. For monitoring, the SCWA shall follow requirements contained in this MRP and any additional requirements listed in the Sediment Sampling and Analysis Guidelines, Appendix B of the SMP Manual.

**B. SAMPLING AND ANALYTICAL METHODS**

1. Sample collection, storage, and analyses shall be performed according to the most recent version of U.S. EPA Standard Methods for the Analysis of Water and Wastewater.
2. Water and sediment analysis shall be performed by a laboratory certified for these analyses by the State of California.
3. All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurements.

**C. DEFINITION OF TERMS**

1. A **grab sample** is a discrete sample collected at any time.
2. A **composite sample** is a discrete sample comprised of two or more grab samples collected at any time from a defined project area.
3. **Receiving waters** refers to any water body that actually or potentially receives surface or groundwater, which passes over, through, or under dredged sediment during placement, dewatering, settling/consolidation, and excavation/removal activities.
4. A rehandling/disposal site operational **episode** consists of continuous dredged material slurry placement on the disposal site that stops for no more than 30 consecutive days. If placement stops for more than 30 consecutive days and then starts up again, the date of

startup will be considered the beginning of a new operational episode for monitoring purposes.

5. **Receiving Waters Standard Observations** refer to:
  - a. Evidence of floating and suspended materials as recorded by visual observations.
  - b. Discoloration and turbidity: description of color, source, and size of affected area.
  - c. Evidence of odors, presence or absence, characterization, source, and distance of travel from source.
  
6. **Site Standard Observations** refer to visual inspection of:
  - a. The overall condition of the sediment containment structure(s) and area and any BMPs to contain the excavated sediment.
  - b. The location of placed material, distance to waters of the State, and whether any discharge of dredged sediments outside of the containment structures has occurred.
  - c. The condition of the excavated material transport equipment along the entire length of the transport path from the sediment removal area to the point of discharge into the containment area.

**D. MONITORING REQUIREMENTS**

1. **Observations and Monitoring Schedule** - The schedule of observations and monitoring is provided in Table 1, below:

**Table 1** - Observations and Monitoring Schedule for the Sediment Disposal Operations

Observation/Monitoring Frequency	Type	Location	Reporting Frequency
Twice daily (once in AM and once in PM) during operations	Receiving water standard observations	Receiving water within the project area	Annually
	Site standard observations	Along project area	Annually

2. **Standard Observations** - The following Standard Observations of the receiving water will be recorded on every day of operation on the field reporting form:
  - a. Floating and suspended materials of waste origin (to include oil, grease, algae, and other macroscopic particulate matter): presence or absence, source, and size of affected area.
  - b. Discoloration and turbidity: description of color, source, and size of affected area.
  - c. Odor: presence or absence, characterization, source, distance of travel, and wind direction.
  - d. Hydrographic condition including: time and height of corrected low and high tides and depth of water columns and sampling depths.

- e. Weather condition including: air temperatures, wind direction and velocity, and precipitation.
3. **Active Water Diversion Monitoring** - For all activities involving an active diversion of a stream:
- a. The SCWA shall establish surface water monitoring stations, one representative of typical undisturbed conditions directly upstream of the active work area and the point of diversion and one representative of surface water affected by the diversion that is directly downstream of the water diversion outlet.
  - b. Baseline measurements shall be taken before installation of diversion structures at the established surface water monitoring stations identified above in 3.a.
  - c. If for whatever reason work within that reach is interrupted for over one day, new baseline measurements shall be taken.
  - d. Water diversion activity monitoring shall be in accordance with Table 2 below:

**Table 2**  
Water Diversion Sampling and Analysis

<b>Parameter</b>	<b>Units</b>	<b>Sample Type</b>	<b>Minimum Analysis Frequency</b>
Dissolved Oxygen	mg/L	Grab	Once Daily at each monitoring station
pH	pH units	Grab	Once Daily at each monitoring station
Temperature	°F	Grab	Once Daily at each monitoring station
Turbidity	NTU	Grab	Once Daily at each monitoring station

- e. The daily sampling set shall be taken during work hours but not within the first hour after maintenance activities have started each day.
- f. Samples shall be taken with accurately calibrated field measurement instrument(s) and the results shall be saved and logged.
- g. A Quality Assurance/Quality Control (QA/QC) plan equivalent to requirements of the State’s Surface Water Ambient Monitoring Program shall be followed.
- h. The SCWA shall observe surface water conditions upstream and downstream of the active project area to visually detect impacts of the water diversion.
- i. Observations shall be conducted during sampling events at sampling locations for presence of bottom deposits, color, film or coating (from oil, grease, wax, etc.), floating material (including solids, liquids, foams, and scum), and odor. See the Standard Observations section for the complete list of observations that will be tracked. If any visual events occur, additional samples as detailed in Table 2 shall be taken, with results being saved, logged, and reported.
- j. The SCWA shall have equipment and supplies onsite (or readily available nearby) that could be quickly deployed to provide additional filtration if turbidity is

observed. These supplies may include: bladders for settling, filter bags and pumps, silt filter dams, or a silt barrier as appropriate depending on site conditions.

- k. Surface water observations detecting exceedances of Discharge Specifications and Receiving Water Limitations are subject to "Reporting" requirements in Section F of this document.
- l. During the installation and removal of diversion structures, the SCWA shall monitor surface monitoring stations as described in 3.a. above, and in accordance with Table 3 below:

**Table 3**  
Diversion Structure Monitoring

<b>Parameter</b>	<b>Units</b>	<b>Sample Type</b>	<b>Minimum Analysis Frequency</b>
Turbidity	NTU	Grab	Twice Daily

**4. Sediment Monitoring**

*a. Applicable Sediment Monitoring*

All dredged material will be disposed in uplands at a permitted disposal facility or a non-wetland beneficial reuse site, such as construction fill, non-agricultural cover, or landfill daily cover. Dredged material disposal at an aquatic or wetland beneficial reuse site is not covered under the SMP's Waste Discharge Requirements.

*b. Sampling Frequency and Locations*

- i. For sediment removal projects and bank stabilization projects at creeks that have not been approved for reduced sampling frequency (per Provision D.4(b)v below), one sample will be collected and analyzed for every 500 cubic yards of sediment removed. Several grab samples may be composited into one sample to represent the bulk of sediment to be removed from the creek.
- ii. For long channel reaches that are not particularly wide or deep with sediment, the SCWA will collect grab sediment samples for every 1000 feet of project length rather than per 500 cubic yards of sediment removal. The SCWA shall use whichever approach results in more samples in order to better characterize the variability along the entire length of the project site.
- iii. For project sites that require more than one sample, grab sampling locations will be selected to represent overall reach conditions. Sampling sites will also specifically target conditions downstream of culvert crossings, culvert outfalls, and key stream confluences.
- iv. In all cases, sampling locations shall be within the project area where there is the highest potential for detecting the maximum number of contaminants at the highest concentrations, and the sampling locations shall be the most representative of site conditions.
- v. Upon approval by the Executive Officer, sampling frequencies may be reduced at locations where the review of readily available, existing information, including all results of previously collected physical and chemical testing, have continually demonstrated attainment of the screening guidelines. SCWA may propose

reduced sampling frequency for sites with a minimum of two years of data. Testing results must be below corresponding Tier I Environmental Screen Levels (ESLs) or commensurate with natural/anthropogenic background concentrations. For sites with reduced sampling frequency, Regional Water Board staff may still require sediment sampling and analysis when there is a suspected contamination source.

*c. Sediment Sampling Methodology*

This guidance applies to discrete (single) samples and composite samples:

- i. All samples shall be collected in accordance with U.S. EPA Guidelines and sampling methodologies.
- ii. The methods of analyses and detection limits must be appropriate for the expected concentrations. Specific methods of analyses must be identified. If methods other than U.S. EPA-approved methods or Standard Methods are used, the exact methodology must be submitted for review and approved by the Executive Officer.
- iii. Sediment sampling methodology is described in the Sediment Sampling and Analysis Guidelines, Appendix B of the SMP Manual.
- iv. For each sediment removal project, the SCWA shall characterize the sediment and summarize all sediment sampling analyses, prior to proposed sediment removal activities.
- v. Every sediment sample location shall be sampled for the full list of parameters/analytes listed in Table 4. Sampling parameters/analytes listed in Table 4 may be modified after a history of sampling is obtained. This may result in not requiring monitoring for some of these contaminants under certain situations or at certain locations, or adding more parameters/analytes if deemed necessary by the Executive Officer.

**5. Post-Project Monitoring**

*a. Bank Stabilization Erosion and Sediment Control Monitoring*

- i. For the first year following completion of a bank stabilization project, the SCWA shall inspect surface waters daily following larger storm events to determine if the project and the installed BMPs are adequately functioning to stabilize soil and prevent excessive erosion.
- ii. Photos will be taken to document all site inspections.
- iii. After the first year of monitoring, project site's shall be monitored once a year for a period of five years thereafter.
- iv. The SCWA shall observe surface water upstream and downstream of each bank stabilization site for bottom deposits, color and floating material. Monitoring will include a visual observation of conditions 200 feet upstream and downstream of the site, conditions of the bank stabilization repair, and conditions of any vegetation planting that was performed.

- v. If any site fails such that erosion or degradation is apparent or the appearance of surface water is degraded, the Regional Water Board shall be immediately notified and corrective actions shall be taken to resolve the problem.
  - vi. For bank stabilization sites that have failed more than twice in a five year period, the SCWA shall monitor creek flows (cfs) and water levels (stage) during two storm events per rainy season. These will be “high flow” events, typically a 1.5 to 5-year recurrence interval storm. Monitoring shall include photo documentation and explanation of visual inspections of: (1) conditions upstream and downstream of the site and (2) conditions of the bank stabilization repair. Information gathered during storm events may aid in determining the cause of the bank failure. The purpose of the investigations is to identify potential causes of bank failures. Many factors affect bank repair success. Assessing sites within or shortly after “high flow” events will provide value in assessing bank repair methods under different flow conditions.
- b. Revegetation Monitoring, including Bank Revegetation*
- i. The SCWA shall monitor all revegetated sites annually for five years after planting, and for at least two years after supplemental watering is discontinued, to determine if supplemental watering, weed control, rodent control, and/or protection from vandalism are required to encourage plant establishment.
  - ii. The SCWA shall implement all vegetation management success criteria requirements contained within the SMP Manual including the Vegetation Management Plan, Appendix E of the SMP Manual.
- c. Geomorphic Shaping Activities*
- i. The SCWA shall monitor all projects that require “geomorphic shaping activities” to determine the sustainability of the grading. These projects sites shall be monitored for a minimum of five years and all monitoring results shall be submitted to the Regional Water Board.
  - ii. For geomorphic shaping projects, post-project monitoring will include evaluating the following channel conditions: channel bank stability, bed scour, thalweg location, and any indications of excessive erosion, instability, or deposition in the channel. If signs of excessive erosion or deposition are observed and/or if the project reach is not geomorphically stable at the end of the five-year monitoring period, the SCWA shall prepare an analysis of the cause of the instability and, if deemed necessary by staff of the Regional Water Board, remedial actions shall be implemented by the SCWA.
- d. Maintenance Activities in Alluvial Fans*
- The SCWA shall monitor all maintenance projects located in or influenced by alluvial fan environments to determine if adaptive management of these areas will inform future management plans. These projects sites shall be monitored for a minimum of five years and all monitoring results shall be submitted to the Regional Water Board.

**6. Best Management Practices Monitoring**

- a. The SCWA shall inspect temporary and permanent structural BMPs at active sites on an on-going basis and at least once each morning and once each afternoon that an activity is being implemented to determine if maintenance, repair, or replacement of BMPs is necessary.
- b. The SCWA shall maintain, repair, or replace BMPs as appropriate to prevent sediment discharge and reduce erosion.
- c. The SCWA shall document BMPs installations and inspections and enter all data in the BMPs inspection log.
- d. The SCWA shall document BMPs effectiveness, maintenance and repair, and corrective actions taken, and enter all data in the BMPs inspection log.
- e. The BMPs inspection log shall be kept onsite while the site is active and shall be available to Regional Water Board staff upon request.
- f. At a minimum, BMPs at active project sites shall be inspected and maintained within two business days (48 hours) prior to each qualifying rain and within two business days (48 hours) after each qualifying rain event. For this requirement, a qualifying rain event is one producing precipitation of ½ inch or more of discharge.

**E. QUALITY ASSURANCE AND QUALITY CONTROL**

A QA/QC plan is an important component of a monitoring program involving extensive field sampling and laboratory analyses. The two objectives of the QA/QC plan are: 1) to provide a means of ongoing control and evaluation of the sampling and analysis procedures; and 2) to quantify data precision and accuracy for use in data interpretation. The QA/QC plan will be followed in all phases of the monitoring program including sampling and data validation and reporting. QA/QC requirements are noted below:

1. The SCWA will utilize a sampling contractor or internal staff to use the field instruments and sampling equipment who will be responsible for managing all field sampling and analysis.
2. All equipment used for field sampling will be tested and calibrated before leaving the office and verified upon arrival at the site to ensure the instruments are in proper working condition.

**F. REPORTING**

**1. General Reporting Requirements**

- a. The SCWA shall comply with reporting dates and requirements within the SMP Manual.
- b. All results of monitoring performed in compliance with this Order shall be made available to Regional Water Board staff upon request.
- c. The SCWA shall submit a transmittal letter with all monitoring reports to demonstrate compliance status with the Order.



## 2. **Records to Be Maintained**

Written reports shall be maintained by the SCWA or its laboratory and shall be retained for a minimum of five years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge or when requested by staff of the Regional Water Board. Such records shall show the following for each sample:

- a. Identity of sample and sample station number.
- b. Date and time of sampling and the name of the person performing the sampling.
- c. Date and time that analyses are started and completed and name of the personnel performing the analyses.
- d. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used.
- e. Calculation and evaluation of results.
- f. Results of analyses and detection limits for each analysis.

## 3. **Reports to Be Filed With the Regional Water Board**

Written monitoring reports shall be filed with the Regional Water Board annually. The reporting requirements are noted below:

- a. A letter transmitting the essential points in each report should accompany the Annual Post-maintenance Summary Report. Such a letter shall include:
  - i. A discussion of any requirement violations found during the last report period and actions taken or planned for correcting the violations. If the SCWA had previously submitted a detailed time schedule for correcting requirement violations, a reference to the correspondence transmitting such schedule will be satisfactory.
  - ii. If no violations have occurred in the last report period, this shall be stated in the letter of transmittal.
  - iii. Monitoring reports and the letter transmitting the monitoring reports shall be signed by the duly authorized representative of the SCWA if such representative is responsible for the overall operation of the facility from which the discharge originates.
  - iv. The letter shall contain a statement by the official, under penalty of perjury, that to the best of the signer's knowledge the report is true, complete, and correct.
- b. The Annual Post-maintenance Summary Report shall contain the following:
  - i. A summary of site maintenance activities.
  - ii. Tabular and graphical summaries of the monitoring data obtained during the previous year or a statement documenting that monitoring data has been collected, is on file at the SCWA, and will be provided for review upon request.
  - iii. A summary and certification of completion of all Standard Observations for the project site.

- iv. A description of the compliance record and corrective actions taken or planned that may be needed to bring the SCWA into full compliance with Order No. R2-2016-0020.
- v. The SCWA shall submit an Annual Post-maintenance Summary Report to the Regional Water Board by January 31 of each year, covering the previous calendar year activities.
- vi. For Each Sediment Removal Project:
  - 1. Characterization of the sediment, and
  - 2. A summary of all sediment sampling analyses.
- vii. For Each Sediment Disposal Event:
  - 1. The quantity and locations of excavated material placed at the site and the source of the excavated material;
  - 2. An estimate of the total volume of dried excavated material that was reused or disposed of offsite during the past year along with a description of the reuse or disposal location(s) where this material was sent; and
  - 3. A map or aerial photograph showing observation and monitoring stations.
- c. Laboratory statements of results of analyses specified in the MRP must be included in each sediment removal and sediment disposal report. The laboratory reporting requirements are as follows:
  - i. The director of the laboratory whose name appears on the laboratory certification shall supervise all analytical work in his/her laboratory and shall sign all reports of such work submitted to the Regional Water Board.
  - ii. Laboratory QA/QC information must be included in the monitoring report.
  - iii. The laboratory QA/QC information should include: the method; equipment and analytical detection limits; the recovery rates; an explanation for any recovery rate that is less than the recovery acceptance limits specified in the U.S. EPA method procedures or the laboratory's acceptance limits (if they are more stringent than those in the U.S. EPA method procedures); the results of equipment and method blanks; the results of spiked and surrogate samples; the frequency of quality control analysis; and the name and qualifications of the person(s) performing the analyses.

#### 4. **Contingency Reporting**

A report to the Executive Officer and Regional Water Board case manager shall be made by telephone of any accidental discharge of whatever origin immediately after it is discovered. A written report shall be filed with the Regional Water Board within five days thereafter. This report shall contain the following information:

- a. A map showing the location(s) of discharge(s);
- b. Approximate flow rate;
- c. Nature of effects, i.e., all pertinent observations and analyses; and

- d. Corrective measures underway or proposed.

**5. Violation Reporting**

- a. Upon discovery of an exceedance, the SCWA shall identify the source of the exceedance, implement corrective action, and resample or make additional observations to determine whether or not the exceedance was corrected.
- b. A report to the Executive Officer and the Regional Water Board case manager shall be made by telephone of any accidental discharge of whatever origin immediately after it is discovered. A written report shall be filed with the Regional Water Board within five days thereafter.
- c. The SCWA shall stop all work at the site for violations lasting longer than two hours. The SCWA shall update Regional Water Board staff of site conditions and obtain verbal permission to resume work.
- d. The SCWA shall notify Regional Water Board staff in writing within five calendar days of all violations. Written reports shall include time and date of incident, duration, estimate of discharge or bypass volume, and documentation of sampling results/observations determining compliance status. The report shall also include detailed discussion of reasons for noncompliance, and specific steps that were or will be taken to correct the failure and prevent it from reoccurring.

**G. MODIFICATION**

Any part of this Monitoring and Reporting Program may be revised with the written approval of the Executive Officer.

I, Bruce H. Wolfe, Executive Officer, hereby certify that the foregoing Monitoring and Reporting and Program:

- 1. Has been developed in accordance with the procedure set forth in this Regional Water Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in Order No. R2-2016-0020;
- 2. Was adopted by the Regional Water Board on April 13, 2016; and
- 3. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the SCWA, and revisions will be ordered by the Executive Officer or the Regional Water Board.

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Bruce H. Wolfe  
Executive Officer

**Table 4**  
Discrete Sediment Sampling and Analysis

U. S. EPA Test Method <sup>1</sup>	Analyte	Reporting Limit for Soil (dry weight mg/kg)	Analyte (cont.)	Reporting Limit for Soil (mg/kg)
<b>Conventional Parameters</b>				
	Grain Size (%)	0.1		
<b>9060</b>	Total organic carbon (TOC) (%)	0.1		
	Total solids (%)	0.1		
<b>6020</b>	<b>Total Metals</b>			
	Arsenic	0.05	Mercury (total)	0.01
	Cadmium (total)	0.05	Nickel (total)	0.1
	Chromium (total)	0.1	Selenium (total)	0.1
	Copper (total)	0.1	Silver (total)	0.1
	Lead (total)	0.1	Zinc (total)	1.0
<b>8081 or 8082A</b>	<b>Organochlorine Pesticides</b>			
	Aldrin	0.02	Dieldrin	0.02
	α-HCH (hexachlorocyclohexane)	0.02	Endosulfan I	0.02
	β-HCH	0.02	Endosulfan II	0.02
	γ-HCH (Lindane)	0.02	Endosulfan sulfate	0.02
	δ-HCH	0.02	Endrin	0.02
	Chlordane (tech)	0.02	Endrin aldehyde	0.02
	2,4'-DDD	0.02	Heptachlor	0.02
	4,4'-DDD	0.02	Heptachlor epoxide	0.02
	2,4'-DDE	0.02	Toxaphene	0.02
	4,4'-DDE	0.02		
	2,4'-DDT	0.02		
	4,4'-DDT	0.02		
	Total DDT	NA		
<b>8270C or 8270D<sup>2</sup></b>	<b>Poly Aromatic Hydrocarbons (PAHs)</b>			
	2-Methylnaphthalene	0.005	Chrysene	0.001
	Acenaphthene	0.001	Dibenz(a,h)anthracene	0.001
	Acenaphthylene	0.001	Fluoranthene	0.001
	Anthracene	0.001	Fluorene	0.001
	Benz(a)anthracene	0.001	Indeno(1,2,3-cd)pyrene	0.001
	Benzo(a)pyrene	0.001	Naphthalene	0.001
	Benzo(b)fluoranthene	0.001	Pyrene	0.001
	Benzo(k)fluoranthene	0.001	Phenanthrene	0.001
	High molecular weight PAHs, sum	NA	Low molecular weight PAHs, sum	NA
	PAHs, total	NA		

<sup>1</sup> The most recent version of U.S. EPA's Test Methods will be used.

The SCWA shall maintain records of field sampling in a log containing at least the following information:

- Date and time
- Site location
- Sample collector

- Sampling methods
- Sampling location
- Sampling depth
- Number of sampling containers
- Specific site conditions
- Analysis requested
- Other information describing the sampling event

Field sampling logs shall be made available to Regional Water Board staff upon request.